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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,931	07/03/2003	James R. Oikari	FS10111AJS	4635

7590 08/17/2004

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EXAMINER

CARRILLO, BIBI SHARIDAN

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/613,931

Applicant(s)

Oikari et al.

Examiner

Sharidan Carrillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 15-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-25 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/03/2003.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-14 and 25, drawn to a method of process a semiconductor, classified in class 134, subclass 26.
 - II. Claims 15-24, drawn to a method of controlling the charge, classified in class 361, subclass 230.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different functions.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Hubbard on 8/11/04 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-14 and 25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 6 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is indefinite because it is unclear what is the drying enhancement substance. It is unclear whether the drying enhancement substance is the same or different from the antistatic agent. Claim 14 is indefinite because it is unclear how you can rinse with an ionized gas.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, 6, 8-12, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Blackwood (4132567).

Blackwood teaches cleaning of wafers in a processing chamber followed by

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drying with ionized nitrogen gas to eliminate static electric charge from the wafer. In reference to claims 2-3, refer to col. 6, lines 5-7. In reference to claim 6, Blackwood teaches ionized nitrogen for drying the wafers. In reference to claim 8, col. 3, lines 40-43 teaches using the processing chamber for stripping and etching. In reference to claim 9, refer to col. 6 and 7 bridging, and col. 7, lines 25-30. In reference to claims 10-12, and 25, col. 6 and 7 bridging teaches introducing ionized nitrogen gas into the bowl during the rinsing cycle. In reference to claim 12, the limitations are inherently met as a result of introducing ionized nitrogen into the processing chamber containing the rinse water.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under

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37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwood et al. (4132567) in view of Tomimori et al. (US2003/0013310).

Blackwood et al. teach the invention substantially as claimed with the exception of the antistatic agent comprising CO₂. Blackwood further fails to teach rinsing with CO₂. Tomimori et al. teach drying with nitrogen gas or CO₂ gas and further teaches treating the wafer with CO₂ in combination with water to decrease the electric charge on the wafer surface.

It would have been obvious to a person of ordinary skill in the art to modify the method of Blackwood to include using CO₂, as taught by Tomimori et al. for purposes of performing the same function of decreasing the electrostatic charge on the wafer surface.

14. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwood et al. (4132567) in view of Kobayashi (US2002/0045328).

Blackwood et al. teach the invention substantially as claimed with the exception of the antistatic agent comprising ionized air. Kobayashi teaches a device for the manufacture of semiconductor devices. In the abstract, Kobayashi teaches an ionizer for decreasing static charge in the semiconductor substrate. In paragraphs 3, 227, and 278, Kobayashi teaches blowing ionized air on the substrate to decrease the static charge.

It would have been obvious to a person of ordinary skill in the art to modify the

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method of Blackwood to include using ionized air, as taught by Kobayashi et al. for purposes of performing the same function of decreasing the electrostatic charge on the wafer surface.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwood et al. (4132567) in view of Tamaki et al. (5227001)

Blackwood et al. teach the invention substantially as claimed with the exception of IPA. Tamaki et al. teach wet stripping followed by drying with nitrogen or IPA to decrease the electrostatic discharge (col. 8, lines 50-62).

It would have been obvious to a person of ordinary skill in the art to modify the method of Blackwood to the use of equivalent means such as IPA, as taught by Tamaki et al. for purposes decreasing the electrostatic charge on the wafer surface.

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Krone-Schmidt et al. teach controlling electrostatic discharge using nitrogen and carbon dioxide. Phan et al. teach a method and system for monitoring electro-static charge. Bishop teaches an anti-static bar. Aoki et al. teach using IPA to remove electrostatic charge. Bonora et al. teach cleaning containers with ionized nitrogen. Kamikawa et al. teach cleaning a substrate with CO₂ and water to reduce the charge.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 571-272-1297. The examiner can normally be reached on Monday-Friday, 6:00a.m-2:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sharidan Carrillo
Primary Examiner
Art Unit 1746

bsc



SHARIDAN CARRILLO
PRIMARY EXAMINER